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No. LXVI.

An account of a Kettle for boiling Inflammable Fluids.—In a letter from THOMAS P. SMITH, to ROBERT PATTERSON.

Philadelphia, June 14, 1798.

SIR,
 Read, June 14, 1798. **W**HEN we consider the many unhappy accidents that occur from vessels containing inflammable fluids boiling over and setting fire to the buildings in which manufactories of them are carried on, it must strike us as a matter of importance to form a vessel which should be so constructed as to prevent any of those accidents, and yet of so simple a form as to render it fit for general use. Impressed with these ideas, I take the liberty of offering for your approbation the following plan.

Let A B C D (*see figure*) represent a large kettle, D E, a spout running out to the distance of three or four feet, commencing at D, four or five inches from the brim of the kettle, and the termination of it E, just as high as the brim C. Let the bottom of this spout be covered with wet sponges or rags. Now suppose the kettle to be filled up to D with any fluid, then as soon as it commenced boiling it would rise in the kettle, and in rising but a small perpendicular height, would pass a considerable distance up the spout D E: here the liquor would soon cool and of consequence fall back into the kettle, and the whole subside to its original height. This would occur as often as the fluid rose above D, as the evaporation from the wet sponges or rags, would keep D E constantly cool.

It would perhaps be best to pass the spout through the side of the building into the open air, as thereby the evaporation would be increased, and consequently the spout kept at a lower temperature; in this case it might be covered.

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In case of the fluid to be boiled possessing a very strong elective attraction to caloric or the matter of heat, the spout might be extended to the width of the diameter of the kettle or a projecting shelf might be formed all round it, lined below with wet sponges or rags.

I remain, Dear Sir,

Yours, &c.

THOMAS. P. SMITH.

MR. ROBT. PATTERSON.

P. S. In conformity to the wish of the society I procured a vessel of the form here proposed. I first tried the experiment with water, it boiled very rapidly, but every time the water rose into the spout it immediately subsided, although the spout had for some time been directly exposed to the heat of one of Lewis's furnaces: I afterwards attempted it with oil, but before the oil boiled the soldering of the vessel, which was made of tin, melted.

An Essay

